

WATER RESOURCE DEVELOPMENT ACT OF 1986 IMPLEMENTATION IN THE U.S. ARMY CORPS OF ENGINEERS

D. L. Parrott

AUTHOR: U.S. Army Corps of Engineers, Savannah District, P.O. Box 889, Savannah, Georgia 31402.

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INTRODUCTION

The Water Resource Development Act of 1986, (WRDA'86), was a turning point in the Federal water resource development in the United States. The Corps of Engineers, as the principal agency responsible for the development of the Nation's water resources, had to make major changes to the process of planning, designing and constructing the Federal Civil Works program. With WRDA'86, gone are the days of large, visible Federal "Pork Barrel" projects. Now, each project has to stand the scrutiny of its most severe adversaries, the local taxpaying public. In the Savannah District, we have implemented the concept of WRDA'86 with an enlightened fervor, and have produced a project that is viable, enjoys strong local support, and will cost substantially less than originally authorized. This paper is a discussion of the changes initiated by WRDA'86, and what we at the Savannah District Corps of Engineers have learned about this new way of doing business.

WRDA'86: A NEW WAY OF DOING BUSINESS!

Since 1936, most Civil Works projects have involved in one form or another involvement with a local sponsor. This involvement may have ranged from tacit, benign approval to full, active participation in the design and funding of civil works projects. Even with this local sponsor involvement, there were allegations by some in Congress that some of these civil works projects were poorly justified, cost too much, and should not have been built. Charges of overdesign, overkill and goldplating in the Corps designs were also raised. Environmentalists raised concerns that the local environment was not adequately protected. Even though these civil works project were in response to an initiative by a local sponsor, it was felt that the reason for the problems was a lack of financial participation in the early planning, design and construction by the local sponsor. In addition, because of the long lead time necessary for Congressional action, the process of formulating, planning, and designing these civil works projects took an average of 15 years. With this long time schedule, scopes had expanded, design changes were incorporated, and with inflation, project cost soared.

From 1975 to 1985, Congress did not pass a single water resource development bill, partially because of

these concerns. By this time, a huge backlog of civil works projects had developed. Before Congress would allow these projects to proceed, however, it made some major changes in the way the Corps of Engineers initiated, designed and justified their projects, and the role and participation of the local sponsor.

To make sure that the projects were indeed needed, viable and cost effective, Congress wrote into WRDA'86 language requiring greater active participation in the project development by the "Local Sponsor". This Local Sponsor would have to pay 5% cash up front, anywhere from 25% to 50% of the total project costs in the form of in-kind work or the construction of project features, along with 50% of the feasibility study costs. These additional costs were to be the "market test" for the project. If the Local Sponsor really wanted the project, they would be willing to share in some of the initial costs. With these increased costs, the Local Sponsor would be able to give greater input to the project development. In this way, the project beneficiaries, the party who will benefit the most, will better influence the scope, cost, environmental impacts and schedule for water resource development projects in their area. Before the feasibility study can start, however, all of the Local Sponsors' concerns and obligations are all outlined in a Feasibility Cost Sharing Agreement, or FCSA. The FCSA assures the local sponsor that the scope, direction, and cost of the study is agreed to up front and will not be changed without mutual consent.

To assure Congress that project costs would not unduly increase, WRDA'86 also included a project cost limit provision in Section 902. Section 902 essentially states that no project will be allowed to increase in cost beyond 20% over the original authorized cost during the "life" of the project, (exclusive of inflation or changes mandated by Congress), without further Congressional reauthorization.

Therefore, if a project increased in estimated cost over what was authorized by greater than 20% because of design changes or other changes in scope, the project must be returned to Congress for reauthorization.

INITIATIVE '88: THE CORPS IMPLEMENTS WRDA'86

The then Assistant Secretary of the Army for Civil

Works, Mr. Robert Page, took Congressional concerns to heart. With his training and experience in the private construction industry, Mr. Page developed, through his Initiative '88 program, what has come to be known as the "Life Cycle Project Management" system, a new management structure within the U.S. Army Corps of Engineers.

In the old management system, the project would be in the hands of the "Study Manager" during the reconnaissance and feasibility study stages, a "Project Engineer" during the design and real estate acquisition phases, and a Resident Engineer during construction. Because of Congressional reviews and approvals, long periods of time could pass between each phase, with each transition an opportunity for error. No one person had "ownership" of the project, and during the long project development, the Local Sponsor would have to deal with a long procession of contacts in its dealings with the Corps.

Individual Project Manager

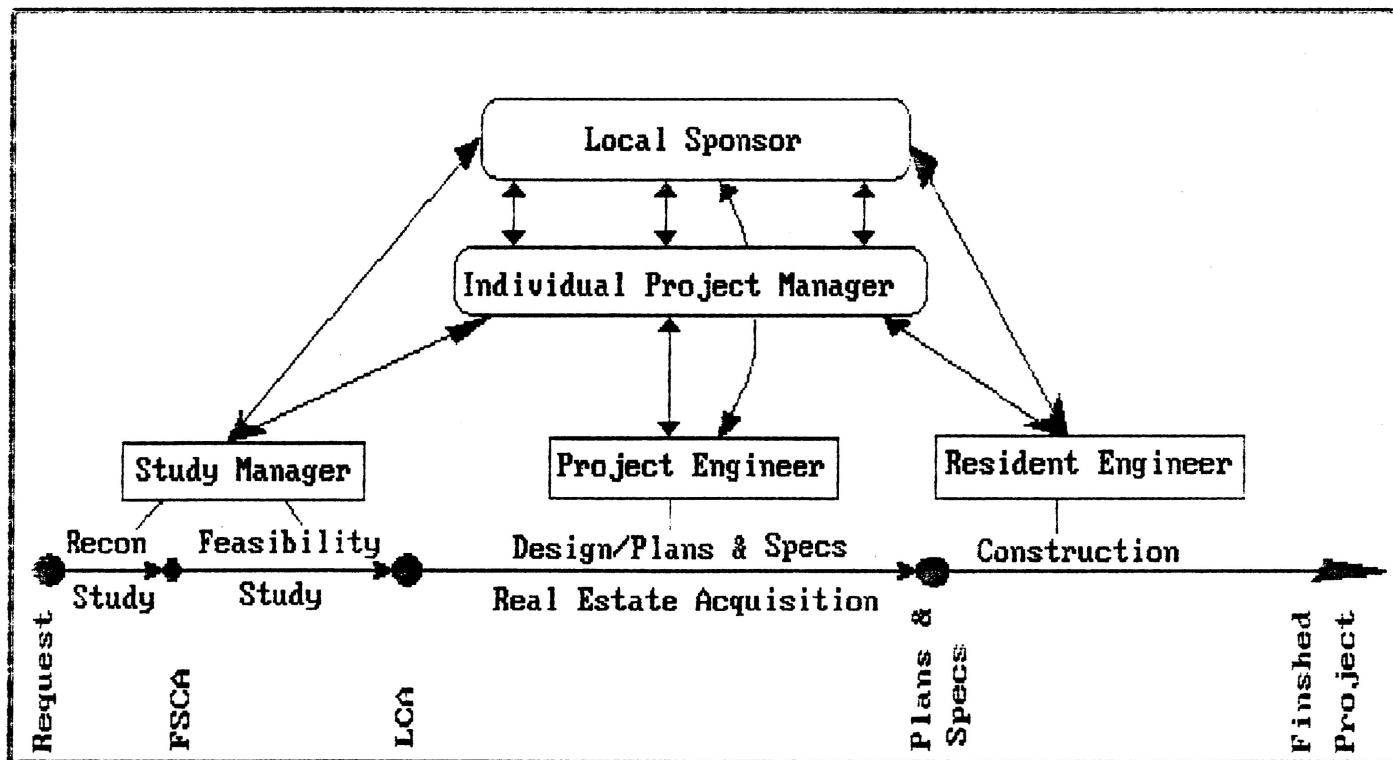
Clearly, in the increased level of cost-sharing and "partnership" that was called for by WRDA'86, past practices would not be satisfactory to the cost-sharing sponsor and to the Corps mission in water resources development. The Local sponsor needed and deserved a single point of contact within the Corps, someone whose

primary interests would be to complete the project on time and within budget, someone who could bring all of the Corps resources to bear to remove obstacles and achieve the optimum project in the minimum timeframe at a minimum cost. The answer to these new needs was a new position within the Corps called the "Individual Project Manager" or IPM. This person would be responsible to the Congress and the Local Sponsor for the successful execution of the project from the project's earliest inception to the final completion and turn over to the Local Sponsor.

Another feature initiated to help manage and control the project is the Project Review Board. This PRB would meet monthly within the Corps District office to discuss the project, resolve issues and set priorities within the District. The PRB would be chaired by a new position within the Corps, a civilian Deputy District Engineer for Project Management, or DDPM. The DDPM provides staff leadership for IPM activities, supervises and manages the IPM, and provides institutional continuity for Project Management.

Project Documentation

Every document produced is a plan of a future yet to be built. As with any other Federal project, a stack of project document is produced. The most important of these project documents is the Project Management Plan, or



Individual Project Manager:

The Individual Project Manager, or IPM, works "shoulder to shoulder" with the technical staff and the local sponsor over the life of the project, from the project's earliest development to the end of construction and turn over to the Local Sponsor.

PMP. This PMP is developed during the project's feasibility phase, and outlines all of the assumptions, estimates, schedules, data, issues and potential problems for the approved project, and how each of the participants will interact and complement each other. The PMP puts all of the cards on the table to avoid surprises and undue delays, and permits comparison of what is expected to what actually happened. With the PMP, the Local Sponsor has a clear, full idea what its obligations are, how their work fits into the larger project picture, and how important their input is to the success of the project. The PMP is a living document, changing as the assumptions are confirmed or modified. With the increased level of participation in the project by the Local Sponsor, the PMP is the cornerstone of that interdependent relationship.

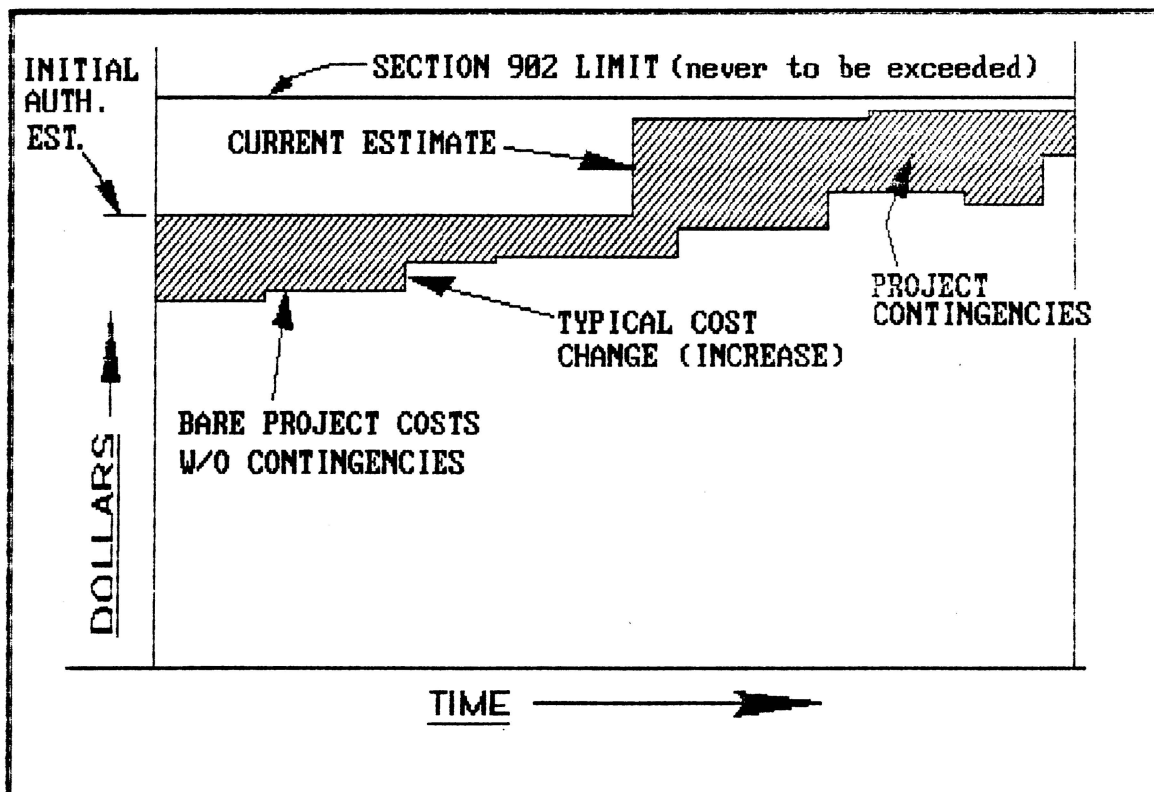
Contingency Management

Every project in the Corps Civil Works program requests additional funds to cover unknown changes and design refinements. These additional funds are termed "Project Contingencies". Early in the development of a project, 20 to 30 percent may be added to the estimated cost of the project to cover changes in assumptions, field

modifications, and design changes. In the past, some projects have been known to increase in cost by 30, 40 and even 50 percent over the original estimated cost. The Section 902 limit was included in WRDA'86 by Congress to control these increases.

To avoid the impacts of a Section 902 limit, and to control the cost escalations of a project, Asst. Secretary Page also initiated uniform contingency management procedures. With the authorization of a new project by Congress, a budget amount is set for the total project cost. This budget includes an appropriate amount of funds designated as the project "contingencies." As the project evolves, the inevitable cost and schedule changes are evaluated and the true total cost of the change and thus the total project is determined. When a cost increase is justified and approved by the Local Sponsor, the amount of increase is deducted from the contingencies and added to the "bare" project cost. If a cost reduction is realized, the bare cost is reduced, and the contingencies are increased.

The IPM has the responsibility to manage the total project cost by controlling the use of the project contingencies. Changes that eat further and further into the contingencies require higher and higher level approval. At the extreme end, if the budget amount, (what was promised to Congress and the Local Sponsor), is projected to



Contingency Management:

As project costs increases occurs through design or field changes, the additional funds must be drawn from the available "Project Contingencies." Through the life of the project, adequate contingencies must be maintained for the remainder of the project. It takes approval from the Assist. Sec. of the Army to raise the current estimate. In no case shall the current estimate exceed the Section 902 limit without Congressional approval.

be exceeded, the Assistant Secretary of the Army in Washington D.C. must approve the cost change. When that happens, you can be sure that the project manager will be called to the carpet on why it happened and why the Project Manager did not see it coming sooner!

OATES CREEK FLOOD CONTROL PROJECT

The Oates Creek Flood Control Project was the first civil project in the Savannah District to come under the Life Cycle Project Management System. Authorized in the WRDA'86, the project is located in Richmond County, Georgia, just southwest of Augusta. The Oates creek project was an outgrowth of a larger Savannah River Basin Study; the Interim Feasibility Study for Oates Creek was completed in 1980.

Initial funding for the plans and specification was appropriated in March, 1988. Along with the funding to start the project, the Local Sponsor, in this case the Richmond County Board of Commissioners, had to commit to their portion of the project cost share. This mutual commitment between the Federal Government and the Local Sponsor took the form of a Local Cooperation Agreement, or LCA. The LCA outlined the physical requirements for the project, the project costs, schedules, and obligations of both the Local Sponsor and the Federal Government.

The Oates Creek project was authorized to cost, (in 1985 dollars), \$13,700,000. With inflation through to the end of construction, the authorized cost is \$14,000,000. The project will alleviate 95% of the average annual damages due to floods, determined to be \$3,800,000 per year. With the authorized cost annualized over the 50 year life of the project, the average annual cost of the Oates Creek Project is estimated at \$1,000,000. This yields a Benefit/Cost (BC) ratio of the project of 2.95 to 1. The major beneficiaries of the project will be the low-income residents and businessmen who live and work in the flood-prone basin, and the Richmond County government who must deal with the short and long term problems that have been caused by the flooding.

The project calls for the improvement of 13,700 linear feet of channel with either grass lined or concrete lined channel. Five road bridges and three railroad bridges are to be replaced with new structures to span the widened channel, along with the associated utility and building relocations.

Cost Sharing Aspects

For Oates Creek, as well as all other flood control projects, the Local Sponsor is responsible for the acquisition of all Lands, Easements and Rights-of-Way, (LERR's), the relocation of all homes, buildings and utilities, and the replacement of all road bridges. In addition, the Local sponsor is responsible for 5% of all project costs in cash. The sum of all of the Local Sponsor

contributions is set in WRDA'86 to be at least 25%, but no more than 50%, of the total project cost, determined by adding the costs of the items of work that the Local Sponsor is responsible for.

The Federal Government is responsible for the construction of the channel and levee, as well as the relocation of all railroad bridges. If the Local Sponsors' share of project items exceed 50% of the total project cost, the Federal Government pays the difference over 50%.

With inflation from 1985 to 1988 added, as well as projected inflation included from 1988 to the end of construction, the project is currently authorized at a cost of \$14,000,000. This estimated total project cost included all project contingencies. Of this, the Federal share is \$9,900,000, and the non-Federal is \$4,100,000, (including the 5%, or \$700,000, in cash contribution). This works out to be an approximate 29% non-Federal and 71% Federal cost sharing split, well above the 25% minimum requirement for non-Federal participation.

Project Status

The land was acquired over a two year period from the primarily low-income homeowners and some industrial and commercial interests. Once the lands were acquired, the Corps was then able to advertise the channel project and award the contract to a general contractor. In the meantime, Richmond County completed the required utility relocations, and moved six homes and 4 businesses out of the way of construction, all efforts dovetailed with the Federal efforts.

The contract for the channel construction was awarded in March 1990, and as of this date the channel construction is approximately 50% complete. Even with the heavy rainfall experienced this past October, construction is scheduled to be completed on time by January, 1992. The three railroad bridges have been completed, at a cost of \$1,500,000. Richmond County has completed the relocation of their five road bridges, at a cost of \$1,300,000. The Local Sponsor, as well as Congress, is highly pleased with the fact that with lower than expected land costs, and the favorable bids for the channel construction contract, the Oates Creek Flood Control project is expected to cost approximately \$12,000,000, about \$2,000,000 less than authorized.

Leaders in Customer Care

It took massive amounts of proactive planning, active coordination, free and open communications, a sense of frankness, understanding and tolerance between the Federal Government and the Local Sponsor in order to bring this project about. With any new way of doing business, we learned a lot. In negotiating, developing, and building this flood control project, the Corps began to address how we can better perform our business to assure a timely, efficient product. In addition, when reviewing and approving the Local Sponsors efforts, the

Corps had to learn to be more flexible in approving how the local sponsor's portion of the project was done. We learned to be more open to the comments from the Local Sponsor, to hear and respond to their concerns, for they are the ones who will have to live with the project once we are finished.

CONCLUSION

Both the Federal Government and the Local Sponsor have benefited from the changes mandated by WRDA'86. Cost and schedule controls have limited the almost inevitable time and cost changes that have in the past plagued Civil Works projects. A single point of contact over the past 5 years of the project, from the end of the planning stages through the midpoint of construction, has benefited the Local sponsor in constructing a viable flood control project that meets their needs and enjoys strong local support. Congress has benefited with the construction of a Civil Works project that is a sound investment of the Federal dollar and will be completed under budget. Last but not least, the residents and business owners of the Oates Creek basin will benefit with a completed project that performs as intended.

RECOMMENDATIONS

With the unusual flooding that occurred this past October, we are currently initiating the studies with Richmond County that will address the long range solutions to flooding problems on Raes Creek, Rocky Creek, and the Augusta Canal. Both Richmond County and the Savannah District Corps of Engineers will utilize the lessons that we have learned to become more efficient in the development and execution of flood control projects in the Savannah District. With the cooperative relationship that has been developed between the Corps and Richmond County, these projects will be developed, designed and constructed on a timely schedule.

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